We claim:

1. A fluorescent spot detection system comprising (i) an optical waveguide, (ii) excitation light source adapted to move relative to the waveguide over a known interval at an advancement velocity, and (iii) a photo detector statically positioned at an edge of the waveguide, the output of which is continuously or quasi-continuously collected and correlated with the excitation light source position, wherein spot detection is achieved through characterization of the photo detector output relative to the excitation light position.

2. The fluorescent spot detection system of claim 1 also comprising a means for discerning between fluorescent co-located on the same waveguide surface, the close spacing of which spots cause overlap of a fluorescent emission signal from the spots.

3. The fluorescent spot detection system of claim 2, wherein the means for discerning between fluorescent co-located spots is the de-convolution of the composite flourescent emission spectra of the closely spaced spots.

4. The fluorescent spot detection system of claim 3, wherein de-convolution of the composite flourescent emission spectra of the closely spaced spots is taken across the entire field of specific binding site spot loci on the waveguide.

5. The fluorescent spot detection system of claim 4, wherein de-convolution is a function of known fluorescent spot locations.

6. The fluorescent spot detection system of claim 5, also comprising a means for discerning the relative intensity of a fluorescence emission signal between fluorescent spots co-located on a single waveguide surface, the spacing of which may or may not cause overlap of the fluorescent emission signal.

7. The fluorescent spot detection system of claim 6, wherein the means for discerning the relative intensity of a fluorescence emission signal between fluorescent spots co-located on a single waveguide surface is de-convolution of the composite flourescent emission spectra of the closely spaced spots.

8. The fluorescent spot detection system of claim 7, wherein de-convolution of the composite flourescent emission spectra of the closely spaced

spots is taken across the entire field of specific binding site spot loci on the waveguide.

9. The fluorescent spot detection system of claim 8, wherein de-convolution is a function of known fluorescent spot locations.

10. A fluorescent diffraction waveguide detector comprising (i) an optical waveguide, (ii) an illumination light source held static relative to the waveguide adapted to provide uniform illumination over the region of the waveguide where fluorescent spots are potentially located, and (iii) a photo detector adapted to move relative to the waveguide over a known interval at a known advancement velocity.

11. The fluorescent diffraction waveguide detector of claim 10, wherein the output from the photo detector is continuously or quasi-continuously collected and correlated with the photo detector's position relative to the waveguide.

12. The fluorescent diffraction waveguide detector of claim 11, wherein spot detection is achieved through characterization of photo detector response relative to photo detector position.

13. The fluorescent diffraction waveguide detector of claim 12, wherein the means for discerning between spots co-located on a single waveguide surface whose spacing is close enough to cause overlap of their respective individual patterns of interference/absorption is the de-convolution of the photo detector response data taken across the entire field of possible spot loci on the waveguide.

14. The fluorescent diffraction waveguide detector of claim 13, wherein de-convolution is based on the prior characterization of known spot arrangements.

15. A fluorescent interference/absorption waveguide detector having a means for discerning relative intensity between spots co-located on the same waveguide surface whose spacing may or may not cause overlap of light interference/absorption.

16. The fluorescent interference/absorption waveguide detector of claim 15, wherein the means for discerning relative intensity between spots is de-

convolution of emission response data of possible fluorescent spot loci taken across the entire field of the waveguide.

17. The fluorescent interference/absorption waveguide detector of claim 16, wherein de-convolution of emission response data is based on the prior characterization of known interference/absorption spot arrangements with known relative interference/absorption characteristics.